DISK DRIVE COMPRISING VCM STALL DETECTOR FOR VELOCITY CONTROL OF AN ACTUATOR ARM

ABSTRACT OF THE DISCLOSURE

The present invention may be regarded as a disk drive comprising a disk, a head, an actuator arm for actuating the head radially over the disk, and a voice coil motor (VCM) for rotating the actuator arm about a pivot, the VCM comprising a coil comprising a VCM resistance R. A back EMF voltage detector measures a back EMF voltage across the coil, and a current detector detects a current I flowing through the coil. An IR voltage detector, responsive to the current I detected by the current detector, detects an IR voltage proportional to the current I times the VCM resistance R. A voltage compensator substantially cancels the IR voltage from the measured back EMF voltage to generate a compensated back EMF voltage. A control voltage generator, responsive the compensated back EMF voltage, generates a control voltage applied to the coil to generate the current I flowing through the coil. A stall detector compares the current I detected by the current detector to a threshold, wherein a VCM stall condition is detected if the current I exceeds the threshold for a predetermined interval.